IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method for quantizing an audio signal in an audio coder, the method comprising:

initializing a quantization step size for each scale factor band of a current frame in the audio signal;

quantizing each scale factor band of the current frame with the initialized quantization step size;

determining quantized scale factor bands that are ~~for which a current quantization step size for that scale factor band is~~ at a vanishing point, wherein ~~at least a peak value in that scale factor band remains non-zero after quantizing that scale factor band with the current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor band~~ the vanishing point is a point where at least the peak value of a spectral coefficient among spectral coefficients in each quantized scale factor band remains non-zero;

freezing ~~respective~~ the quantization step size ~~sizes~~ for the determined scale factor bands that are at ~~their~~ the vanishing point~~s~~;

comparing ~~a~~ the number of bits consumed in coding spectral lines in ~~each~~ all scale factor bands in the current frame at the ~~current~~ quantization step size to a specified bit rate;

if the number of bits consumed is greater than the specified bit-rate, incrementing the quantization step size for quantizing ~~of each~~ scale factor bands of the current frame that are not at the vanishing point ~~that are not frozen~~ and repeating the steps of quantizing, determining, freezing, and comparing ~~and incrementing, if the number of bits consumed is greater than the specified bit-rate~~ wherein the maximum value of the incremented quantization step size for quantizing a scale factor band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that scale factor band becomes zero; and

if the number of bits consumed is not greater than the specified bit rate, exiting the quantization loop for the current frame ~~when the number of bits consumed is at or below the specified bit rate~~.

2. (Original) The method of claim 1, further comprising:

grouping sets of spectral lines to form the scale factor bands in the current frame;

assigning an initial quantization step size to each scale factor band in the current frame; and

quantizing the sets of spectral lines in each scale factor band.

3. (Canceled)

4. (Currently Amended) A method for quantizing an audio signal in an audio coder comprising:

initializing a quantization step size for each scale factor band of a current frame in the audio signal;

quantizing each scale factor band of the current frame with the initialized quantization step size;

determining whether ~~a~~ the number of bits consumed in quantizing spectral lines in ~~each~~ all scale factor bands in ~~a~~ the current frame is at or below a user specified bit rate;

if so, freezing quantization step sizes in all the scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size for quantizing ~~of each~~ scale factor bands of the current frame by a predetermined quantization step size;

determining whether the ~~quantization step sizes in one or more~~ quantized scale factor bands are at a vanishing point, wherein ~~at least a peak value in a corresponding scale factor band remains non-zero after quantizing that scale factor band with a current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor band~~ the vanishing point is a point where at least the peak value

of a spectral coefficient among spectral coefficients in each quantized scale factor band remains non-zero; and

if not, repeating the above steps, wherein the maximum value of the incremented quantization step size for quantizing a scale factor band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that scale factor band becomes zero.

5. (Previously Presented) The method of claim 4, further comprising:

if so, freezing the quantization step sizes of the one or more scale factor bands that are at the vanishing point;

quantizing the spectral lines of remaining scale factor bands in the current frame that are not at the vanishing point;

determining whether a number of bits consumed in quantizing all the spectral lines of the remaining scale factor bands is at or below the user specified bit rate;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each remaining scale factor band by the predetermined quantization step size;

determining whether the quantization step sizes in one or more of the remaining scale factor bands are at the vanishing point; and

if not, repeating the above steps of determining whether a number of bits, freezing, incrementing and determining whether the quantization step sizes.

6. (Previously Presented) The method of claim 5, further comprising:

if so, comparing the remaining scale factor bands with a perceptual priority chart;

dropping one or more of the remaining scale factor bands as a function of the comparison;

determining whether the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate in the current frame;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame; and

if not, repeating the above steps of dropping one or more additional scale factor bands as a function of the comparison until the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate.

7. (Previously Presented) The method of claim 4, further comprising:

grouping sets of spectral lines to form the scale factor bands in the current frame;

assigning an initial quantization step size to each scale factor band in the current frame; and

quantizing the sets of spectral lines in each scale factor band and determining the number of bits consumed in each scale factor band based on the quantization.

8. (Canceled)

9. (Currently Amended) A method for quantizing spectral information in an audio encoder comprising:

assigning an initial quantization step size to each scale factor band in a current frame as a function of a priority chart generated based on a perceptual model;

forming a first perceptual priority chart for the assigned scale factor bands;

quantizing each scale factor band of the current frame with the initialized quantization step size;

determining whether ~~a~~ the number of bits consumed in quantizing spectral lines in the quantized scale factor bands in the current frame is at or below a user specified bit rate;

if so, freezing the quantization step sizes in all the scale factor bands and exiting the quantization of the current frame;

if not, incrementing the quantization step size for quantizing ~~of each~~ scale factor bands of the current frame based on the first perceptual priority chart;

determining whether the ~~quantization step sizes in~~ one or more scale factor bands are at a vanishing point, wherein ~~at least a peak value in a scale factor band remains non-zero after quantizing that scale factor band with a current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor~~

~~band~~ the vanishing point is a point where at least the peak value of a spectral coefficient among spectral coefficients in each quantized scale factor band remains non-zero; and

if not, repeating the above steps, wherein the maximum value of the incremented quantization step size for quantizing a scale factor band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that scale factor band becomes zero.

10. (Previously Presented) The method of claim 9, further comprising:

if so, freezing the quantization step sizes of the one or more scale factor bands that are at the vanishing point;

forming a second perceptual priority chart by removing the one or more scale factor bands that are at the vanishing point from the first perceptual priority chart;

quantizing spectral lines of remaining scale factor bands that are not at the vanishing point and determining a number of bits consumed in the remaining scale factor bands based on the quantization;

determining whether the number of bits consumed in quantizing all spectral lines of the remaining scale factor bands is at or below the user specified bit rate;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each remaining scale factor band based on the second perceptual priority chart;

determining whether all the remaining scale factor bands are at the vanishing point; and

if not, repeating the above steps of determining whether the number of bits consumed,

freezing the quantization step sizes, incrementing quantization step size, and determining whether all the remaining scale factor bands.

11. (Previously Presented) The method of claim 10, further comprising:

if so, comparing the remaining scale factor bands with the first perceptual priority chart;

dropping one or more of the remaining scale factor bands having lower perceptual priority as a function of the comparison;

determining whether the number of bits consumed by the remaining scale factor bands is

at or below the user specified bit rate in the current frame;

if so, freezing the quantization step sizes of all the remaining scale factor bands and exiting the quantization of the current frame; and

if not, repeating the above steps of dropping one or more additional scale factor bands as a function of the comparison until the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate.

12. (Currently Amended) An article comprising:

a storage medium having instructions that, when executed by a computing platform, result in execution of a method comprising:

initializing a quantization step size for each scale factor band of a current frame in the audio signal;

quantizing each scale factor band of the current frame with the initialized quantization step size;

determining whether ~~a~~ the number of bits consumed in quantizing spectral lines in ~~each~~ all scale factor bands in the current frame is at or below a user specified bit rate ~~in a current frame~~;

if so, freezing quantization step sizes in all the scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size for quantizing ~~of each~~ scale factor bands of the current frame by a predetermined quantization step size;

determining whether one or more quantized scale factor bands ~~is~~ are at a vanishing point, wherein ~~at least a peak value in a corresponding scale factor band remains non-zero after quantizing that scale factor band with a current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor band~~ the vanishing point is a point where at least the peak value of a spectral coefficient among spectral coefficients in each quantized scale factor band remains non-zero; and

if not, repeating the above steps, wherein the maximum value of the incremented quantization step size for quantizing a scale factor band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that scale factor band becomes zero.

13. (Previously Presented) The article of claim 12, further comprising:

if so, freezing the quantization step sizes of the one or more scale factor bands that are at the vanishing point;

quantizing spectral lines of remaining scale factor bands in the current frame that are not at the vanishing point;

determining whether a number of bits consumed in quantizing all the spectral lines of the remaining scale factor bands is at or below the user specified bit rate;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each remaining scale factor band by the predetermined quantization step size;

determining whether all the remaining scale factor bands are at the vanishing point; and if not, repeating the above steps of determining whether the number of bits consumed, freezing the quantization step sizes, incrementing quantization step size, and determining whether all the remaining scale factor bands.

14. (Previously Presented) The article of claim 13, further comprising:

if so, comparing the scale factor bands with a perceptual priority chart;

dropping one or more of the scale factor bands as a function of the comparison;

determining whether the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate in the current frame;

if so, freezing the quantization step sizes of all the remaining scale factor bands and exiting the quantization of the current frame; and

if not, repeating the above steps of dropping additional scale factor bands as a function of the comparison until the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate.

15. (Currently Amended) An audio coder comprising:

an input module partitions an audio signal into a sequence of successive frames;

a time-to-frequency transformation module obtains the spectral lines in each frame and forms critical bands by grouping sets of neighboring spectral lines; and

an encoder coupled to the time-to-frequency module, wherein the encoder further comprises:

an inner loop module determines whether a number of bits consumed in each critical band is at or below a user specified bit rate in a current frame, wherein the inner loop module freezes quantization step sizes in all the critical bands when the number of bits consumed is at or below the user specified bit rate; and

an outer loop module increments quantization step sizes for quantizing ~~of~~ each critical band by a predetermined quantization step size when the number of bits consumed is above the user specified bit rate, wherein the maximum value of the incremented quantization step size for quantizing a critical band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that critical band becomes zero, and determines whether the ~~quantization step sizes in~~ one or more quantized critical bands are at ~~the~~ a vanishing point, wherein ~~at least a peak value in a scale factor band remains non-zero after quantizing that scale factor band with a current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor band~~ the vanishing point is a point where at least the peak value of a spectral coefficient among spectral coefficients in each quantized critical band remains non-zero, and wherein the outer loop module freezes the quantization step sizes of the one or more critical bands that are at the vanishing point.

16. (Previously Presented) The audio coder of claim 15, wherein the outer loop module quantizes spectral lines of remaining critical bands that are not at the vanishing point, wherein the inner loop module determines whether a number of bits consumed by the remaining critical bands is at or below the user specified bit rate, wherein the outer loop module freezes the

quantization step sizes in all the remaining critical bands and exits quantization of the current frame, wherein the outer loop module increments quantization step sizes of the remaining critical bands by the predetermined quantization step size, wherein the outer loop module determines whether the remaining critical bands are at the vanishing point, and wherein the outer loop module increments quantization step sizes until the user specified bit rate is met when none of the remaining critical bands are not at the vanishing point.

17. (Previously Presented) The audio coder of claim 16, wherein the outer loop module compares the remaining critical bands with a perceptual priority chart when all the critical bands are at the vanishing point, wherein the outer loop module drops the one or more of the critical bands having a lower perceptual quality as a function of the comparison, wherein the inner loop module determines whether the number of bits consumed by the spectral lines in the remaining critical bands is at or below the user specified bit rate in the current frame, wherein the outer loop module freezes the quantization step sizes of all the remaining critical bands when the number of bits consumed by the remaining critical bands is at or below the user specified bit rate and exits the quantization of the current frame, and wherein the outer loop module drops one or more critical bands until the user specified bit rate is met when the number of bits consumed by the remaining critical bands are above the user specified bit rate.

18. (Currently Amended) A system comprising:

a bus;

a processor coupled to the bus;

a memory coupled to the processor;

a network interface coupled to the processor and the memory; and

an audio coder coupled to the network interface and the processor, wherein the audio coder further comprises:

an input module partitions an audio signal into a sequence of successive frames;

a time-to-frequency transformation module obtains the spectral lines in each frame and forms critical bands by grouping sets of neighboring spectral lines; and

an encoder coupled to the time-to-frequency module, wherein the encoder further

comprises:

an inner loop module determines whether a number of bits consumed in quantizing spectral lines in each scale factor band is at or below a user specified bit rate in a current frame, wherein the inner loop module freezes quantization step sizes in all the critical bands when the number of bits consumed is at or below the user specified bit rate; and

an outer loop module increments quantization step sizes for quantizing ~~of~~ each critical band by a predetermined quantization step size when the number of bits consumed is above the user specified bit rate, wherein the maximum value of the incremented quantization step size for quantizing a critical band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that critical band becomes zero, wherein the outer loop module determines whether one or more quantized critical bands are at a vanishing point, wherein ~~at least a peak value in a scale factor band remains non-zero after quantizing that scale factor band with a current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor band~~ the vanishing point is a point where at least the peak value of a spectral coefficient among spectral coefficients in each quantized critical band remains non-zero, and wherein the outer loop module freezes the quantization step sizes of the one or more critical bands that are at the vanishing point.

19. (Previously Presented) The system of claim 18, wherein the outer loop module quantizes spectral lines of remaining critical bands in the current frame that are not at the vanishing point, wherein the inner loop module determines whether a number of bits consumed in quantizing the spectral lines in the remaining critical bands is at or below the user specified bit rate, wherein the outer loop module freezes the quantization step sizes in all the remaining critical bands and exits quantization of the current frame when the number of bits consumed in quantizing the critical bands is at or below the user specified bit rate, wherein the outer loop module increments quantization step sizes of the remaining critical bands by the predetermined quantization step size, wherein the outer loop module determines whether all the remaining critical bands are at the

vanishing point, and wherein the outer loop module increments quantization step sizes until the user specified bit rate is met when none of the remaining critical bands are not at the vanishing point.

20. (Previously Presented) The system of claim 19, wherein the outer loop module compares the remaining critical bands with a perceptual priority chart when all the critical bands are at the vanishing point, wherein the outer loop module drops the one or more critical bands having a lower perceptual quality as a function of the comparison, wherein the inner loop module determines whether the number of bits consumed by the spectral lines in the remaining critical bands is at or below the user specified bit rate in the current frame, wherein the outer loop module freezes the quantization step sizes of all the remaining critical bands when the number of bits consumed by the remaining critical bands is at or below the user specified bit rate and exits the quantization of the current frame, and wherein the outer loop module drops one or more critical bands until the user specified bit rate is met when the number of bits consumed by the remaining critical bands are above the user specified bit rate.

21. (Currently Amended) An apparatus for encoding an audio signal in an audio coder, comprising:

means for partitioning an audio signal into a sequence of successive frames;

means for obtaining the spectral lines in each frame and forming critical bands by grouping sets of neighboring spectral lines; and

means for initializing a quantization step size for each critical band of a current frame in the audio signal;

means for quantizing critical bands of the current frame with the initialized quantization step size, wherein the means for quantizing further comprises:

means for determining whether a number of bits consumed by the spectral lines in the quantized critical bands is at or below a user specified bit rate in a current frame, and ~~wherein the means for determining whether the number of bits consumed by the spectral lines in the critical bands is at or below the user specified bit rate freezes~~ freezing the

quantization step sizes in all the critical bands when the number of bits consumed is at or below the user specified bit rate; and

means for incrementing quantization step size of each critical band by a predetermined quantization step size when the number of bits consumed is above the user specified bit rate, wherein the maximum value of the incremented quantization step size for quantizing a critical band is the value beyond which the peak spectral coefficient value among the spectral coefficients in that critical band becomes zero, and wherein the means for incrementing quantization step size of each critical band determines whether one or more quantized critical bands are at a vanishing point, wherein ~~at least a peak value in a scale factor band remains non-zero after quantizing that scale factor band with a current quantization step size, and any further increase in the current quantization step size will result in all zero quantized coefficients in that scale factor band~~ the vanishing point is a point where at least the peak value of a spectral coefficient among spectral coefficients in each quantized critical band remains non-zero.

22. (Canceled)